

CLAIMS

1. Method for the application of powder paint on at least one manufactured article comprising the application of a first layer of powder paint, the fixing of said first paint layer, the application of at least a second layer of powder paint with a colour, tone and/or properties different from the first paint layer, the final baking of said first and at least a second paint layer, the rolling and/or brushing of the article to reproduce the required decoration, characterised in that said method is carried out by a continuous forward travel motion applied to said at least one manufactured article, and subjecting at least the first painting means during the painting step, and respectively at least the first rolling and/or brushing means during the rolling and/or brushing step, to move on a corresponding closed cyclic passage comprising at least a first following up section of said at least one manufactured article during which a relative movement is imposed between said first at least painting means and respectively said rolling and/or brushing means, and said at least one manufactured article.
2. Powder painting method according to the previous claim, characterised in that said at least first following up section develops along a sloped direction in relation to the movement direction of said at least one manufactured article.
3. Powder painting method according to one or more of the previous claims, characterised in that at least the application step of said at least one second paint layer is

preceded by a measuring step to calculate the size of said at least one manufactured article in order to dose the amount of paint powder to be applied according to said measurement and a dedicated formula to obtain the final required effect.

4. Powder painting method according to one or more of the previous claims, characterised in that for the application of each paint layer, said at least first painting means carries out along said corresponding cyclic passage, a first following up section sloped in relation to the movement direction of said at least one manufactured article, adapted to apply the paint on said at least one manufactured article, a first return section parallel to the movement direction of said at least one manufactured article, a second following up section sloped in relation to the movement direction of said at least one manufactured article, adapted to the painting of one eventual second manufactured article, and a second return section parallel to said movement direction of said at least one manufactured article.

5. Powder painting method according to one or more of the previous claims, characterised in that for the rolling and/or brushing operations, said at least first rolling and/or brushing means carries out along said corresponding cyclic passage, a single following up section sloped in relation to the movement direction of said at least one manufactured article, adapted to carry out the rolling and/or brushing action on said at least one manufactured article and on an eventual successive article, and along a single return

section in the opposite direction to said first following up section.

6. Powder painting method according to one or more of the previous claims, characterised in that it comprises a sequence comprising the application of the first base coat of paint, the fixing of said first base coat, the application of a second light coat layer of paint, the brushing to confer a uniform variegated aspect on said at least one manufactured article, the fixing of said second paint layer, the application of a third layer of coating paint, the rolling action to confer the required final decorative finish on said at least one manufactured article, followed by final oven baking.

7. Powder painting equipment for at least one manufactured article comprising a first centre for applying the first layer of powder paint, a first station for fixing said first paint layer, at least a second centre for applying at least a second layer of powder paint in a colour, tone and/or with properties different from said first paint layer, a second station for the final baking of said first and at least one second paint layer, an equipment for rolling and/or brushing the manufactured article to reproduce the desired decorative effect, characterised in that it comprises moving means to generate the continuous forward movement of said at least one said manufactured article, in that a first mobile support unit is mounted in each paint application centre adapted to move at least the first paint application means along a

corresponding closed cyclic passage, including at least a first following up section of said at least one manufactured article during which a relative movement is imposed between said at least first paint application means and said at least one article, and in that a first mobile unit exists in said rolling and/or brushing equipment, adapted to move at least the first roller and/or brush means along a corresponding closed passage including at least a first following up section of said at least one manufactured article during which a relative movement is imposed between said at least first roller and/or brush means and said at least one manufactured article.

8. Powder painting equipment according to the previous claim, characterised in that in each paint application centre said cyclic passage comprises a first following up section sloped in relation to the movement direction of said at least one said manufactured article, a first return section parallel to the movement direction of said at least one manufactured article, a second following up section sloped in relation to the forward movement direction of said at least one article, and a second return section parallel to said movement direction of said at least one article.

9. Powder painting equipment according to one or more of the previous claims, characterised in that it comprises means for measuring the size of said at least one manufactured article at the entry of said at least a second centre for the application of at least a second paint layer, as well as

control means that delivers a paint amount according to the detected measurements and to a dedicated formula to obtain the required final effect.

10. Powder painting equipment according to one or more of the previous claims, characterised in that in each painting centre said at least first support unit for said at least first paint application means moves on a fixed guide comprising a first and second portion of guide sloped in relation to the forward movement direction of said at least one manufactured article, and a third and fourth portion parallel to the movement direction of said at least one manufactured article.
11. Powder painting equipment according to one or more of the previous claims, characterised in that in each painting centre said at least a first mobile support unit for said at least first paint application means moves on a mobile guide positioned at right angles to the forward movement direction of said at least one manufactured article and carried in turn by a mobile support unit in a direction parallel to the movement direction of said at least one manufactured article.
12. Equipment in a powder paint application equipment for rolling and/or brushing at least one manufactured article to reproduce the desired decorative finish, characterised in that it includes at least a first rolling and/or brushing means mounted on a first mobile support unit adapted to move it along a corresponding closed circuit passage comprising of a single following up section of said at least one

manufactured article during which the movement is imposed between said first roller and/or brush means and said at least one manufactured article, and a single return section, said following up section being developed in a direction that slopes in relation to the movement direction of said at least one manufactured article.

13. Equipment for rolling and/or brushing according to the previous claim, characterised in that it comprises at least a second rolling and/or brushing means for simultaneous rolling and brushing of said at least one manufactured article and a successive article.

14. Equipment for rolling and/or brushing according to one or more previous claims, comprising an overhead conveyor system for said at least one manufactured article, presenting at least one support organ adapted to support and revolve said at least one manufactured article around an axis substantially at right angles to the movement direction of said at least one manufactured article, and characterised in that said support organ presents a first plate-shaped positioning element engaged to slide along the corresponding first guide means adapted to block said at least one manufactured article in a first pre-established angular position in relation to the relative rotating axis during rolling and/or brushing operations, and at least one second plate-shaped positioning element engaged to slide along the corresponding at least second guide means adapted to block said at least one manufactured article in a second pre-

established angular position in relation to the relative rotating axis during rolling and/or brushing operations.

15. Equipment for rolling and/or brushing according to one or more previous claims, characterised in that said first and at least second plate shaped elements have a lying plane substantially at right angles to each other to block said at least one manufactured article in a first pre-established angular position or in a second pre-established angular position substantially rotated by  $90^\circ$  in relation to the first established angular position during rolling and/or brushing operations.

16. Equipment for rolling and/or brushing according to one or more previous claims, characterised in that said at least first and second rolling and/or brushing means presents an axis at right angles to said sloping direction of said following up section.

17. Equipment for rolling and/or brushing according to one or more previous claims, characterised in that said guide means of said first and second positioning elements is propelled by a corresponding linear actuator at right angles to the movement direction of said at least one manufactured article.

18. Equipment for rolling and/or brushing according to one or more previous claims, characterised in that said at least first mobile support unit of said at least first rolling and/or brushing means comprises a carriage moved along a corresponding sloping upright of the equipment frame driven

by a motor through a transmission organ.

19. Equipment for rolling and/or brushing according to one or more previous claims, characterised in that it includes at least a first moving means mounted on said at least first mobile support unit of said at least first rolling and/or brushing equipment set at right angles to the movement direction of the said at least one manufactured article, between the idle position and operating position.

20. Equipment for rolling and/or brushing according to one or more previous claims, characterised in that said at least first moving means comprises an actuator for the linear control of a carriage sliding on a guide at right angles to the movement direction of said at least one manufactured article, said a carriage supporting said at least first rolling and/or brushing means and a rotation control motor for said at least first rolling means.

21. Equipment for rolling and/or brushing according to one or more previous claims, characterised in that it foresees the application of a coating layer in deformable elastic material to the side surface of the rollers, presenting a working face composed of a series of peaks and hollows specifically processed thereon according to the graphic effect one intends obtaining on the manufactured article

22. Equipment for rolling and/or brushing according to one or more previous claims, characterised in that said rollers are directed to roll with or without a sliding action on the manufactured article according to the graphic effect one



intends obtaining.

23. Manufactured article having a coating obtained through the application of powder paint, characterised in that it comprises a first layer of base coat that penetrates the porous surface of the manufactured article, a second light paint layer that penetrates the first paint layer at least partially, and a third paint layer that penetrates at least the second paint layer, said coating having a variable thickness obtained through a rolling action accompanied by a rolling and sliding action applied to the third paint layer before polymerisation to confer the desired tactile and visual effect on the manufactured article.

24. Decorative method used on at least one manufactured article through the application of powder paint and the relative equipment as described and illustrated.